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and is widely employed by phoneticians. The work of Mr. A. G. Bell and the late Mr. H. Sweet should also be referred to in this connection.

Of perhaps greater importance than a standard alphabet is the question of an international language. In this connection the "Academia pro Interlingua" has carried on a scientific study of the question and perhaps the majority of its members are in favor of adopting simplified Latin. Professor G. Peano, of the Turin (Italy) University, is president of the Academia which has been in existence over twenty-five years.

A. FANTI

BUREAU OF STANDARDS

DR. MOODIE'S OPISTHOTONUS

TO THE EDITOR OF SCIENCE: Professor Moodie's Study No. 3, Paleopathology, "*Opisthotonus* and Allied Phenomena among Fossil Vertebrates,"¹ aims to show that the bent back head which one sees not commonly in well preserved vertebrates is "a manifestation of spastic distress" of the creature, "suggesting a strong neurotoxic condition," and leading the author even to seek for the infecting bacteria which have given the shortly-to-be-fossilized vertebrate a cramp in the neck. This condition Dr. Moodie compares with opisthotonus in man as illustrated in Bell's painful drawing.

I wonder, nevertheless, whether it is necessary to seek so far afield for the cause of this head-bent-back position in fossils. This position, every one will admit, is an extremely common one, in fact most backboned animals show it when they are well preserved—while opisthotonus is, so far as I know, an extremely rare malady. It would trouble one to find recorded cases of it in reptiles or birds, amphibia or fishes: even in mammals collectively the percentage of deaths following opisthotonus would evidently be microscopically small. Then, too, when one of these rare cases died in cramp would it be apt long to retain that position while it floated down a stream with muscles rotting, or while it dried out

of its soddenness on a bank of mud, or while deliquescently putrid it became picked more or less to pieces by all manner of sarcophagous creatures? No it seems to me that what the doctor calls "opisthotonus" is merely a physical phenomenon which causes the neck region of a macerating vertebral column to bend backward. For on the back of the column are stouter ligaments which hold the bones together: hence when the backbone eventually loosens up in the process of decomposition the bodies of the vertebrae separate earlier than the arches, thus producing the inbent column. Of course there would be no great degree of bending back in the chest region, for here the cage of ribs would long keep the back straight: nor in the lumbar region, since here the neural arches are short and there is therefore less leverage for their dorsal ligaments: nor again in the tail, for here the ligaments are far more nearly balanced in all sides of the column.

BASHFORD DEAN

COLUMBIA UNIVERSITY

FIELD WORK IN ARIZONA

TO THE EDITOR OF SCIENCE: At the last faculty meeting of the University of Arizona, President R. B. von Kleinsmid outlined a plan for summer-session work that was received with enthusiasm by the faculty, and may be of interest to many readers of SCIENCE. Since the climate of Tucson is not suited to the conventional campus summer-session, the university plans to carry on vacation-work in the field, in several parts of the state where the climate is more bracing or where the work would be of such a character as to make the mid-summer heat a negligible consideration. It is proposed that groups of students under the direction and leadership of professors from the University of Arizona, study: archeology through actual excavation work in the northern part of the state, geology at the Grand Canyon, biology at the Mt. Lemon camp, mining engineering at the great copper mines, etc. Such opportunities for first-hand observation and investigation in an interesting and comparatively fresh field will doubtless appeal

¹ *Am. Naturalist*, LII., pp. 369-394.

to many teachers of science throughout the country.

F. M. PERRY

TUCSON, ARIZONA

QUOTATIONS

SCIENCE IN THE BRITISH PARLIAMENT

AMONG the 707 members of the new parliament there are two fellows of the Royal Society, that is to say, of the body which contains the leading representatives of scientific knowledge and research. One of these, Mr. Balfour, must be taken as an example of the smaller number of fellows who are elected because of their social position and general culture rather than of the normal body of fellows elected because of their devotion to and distinction in scientific research. Sir Joseph Larmor, the other fellow, is a typical example of high scientific distinction, and it is merely an individual accident that his parliamentary record is one of blameless devotion to party politics rather than of specific representation of science. Curiously enough, there are two former teachers of human anatomy—Dr. Addison and Sir Auckland Geddes—and Mr. MacKinder was a well-known geographer before he became a politician. The great experience of Sir Philip Magnus has been in the directorate of institutions for applied science and technology rather than in actual scientific pursuits, and a similar comment may be made on Mr. Woolcock's relation to pharmacology and drugs.

The new parliament will be charged with the duty of reconstructing the social, commercial and industrial fabric of the country and of the empire, and among its 707 members there is only one whose life has been devoted to scientific research. Let it be said at once that the object of calling attention to this defect in the House of Commons is not to advocate the presence in parliament of scientific representatives who should try to protect the interests of scientific men in the fashion in which the representatives of professional and working-class trade unions foster the material interests of their members. The point which ought to be taken is wider, and concerns not a group of individuals, but the whole nation. Huxley, in

an address delivered to workingmen in 1868, stated the case in words of enduring cogency. After saying that any one would be a fool who should sit down to a game of chess on the winning or losing of which depended his life and fortune without knowing something of the rules of the game, he went on to say:

Yet it is a very plain and elementary truth, that the life, the fortune and the happiness of every one of us do depend upon our knowing something of the rules of a game infinitely more difficult and complicated than chess. It is a game which has been played for untold ages, every man and woman of us being one of two players in a game of his or her own. The chessboard is the world, the pieces are the phenomena of the universe, the rules of the game are what we call the laws of nature. The player on the other side is hidden from us. We know that his play is always fair, just and patient. But also we know, to our cost, that he never overlooks a mistake, or makes the smallest allowance for ignorance. To the man who plays well, the highest stakes are paid, with that sort of overflowing generosity with which the strong shows delight in strength, and one who plays ill is checkmated—without haste, but without remorse.

In the complicated conditions of modern life, very few of us can play our own game. In sanitation, housing, public health, provision for research, relation of general research to specific inquiries, and a multitude of other matters of fundamental importance, we have to leave all the important moves to parliament. Neither in parliament nor in the departments from which most of the initiation comes, and on which all the execution will depend, is there a sufficient leaven of the requisite knowledge.

It will be said that expert advice is always taken on scientific matters. Assuming this, and adding to it the further assumption that the advice is always acted on with intelligence and sympathy, it is to be noted that expert advice is also always taken on financial matters, commercial matters, legal matters and so forth, and that, none the less, there are in the House of Commons very many members with expert knowledge of, and interest in, finance business, and law. These are ready and able to suggest the final criticisms, adjustments and coordinations that may be required in the measures